Health Indicators for Community Health Assessment

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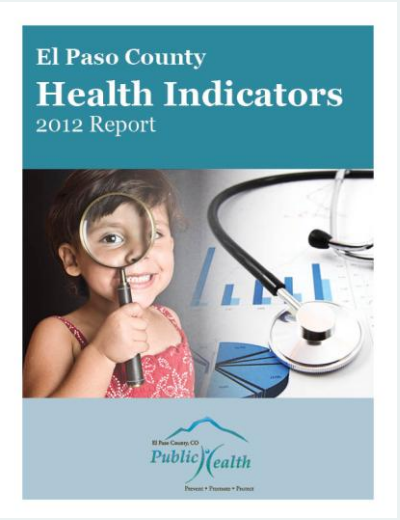
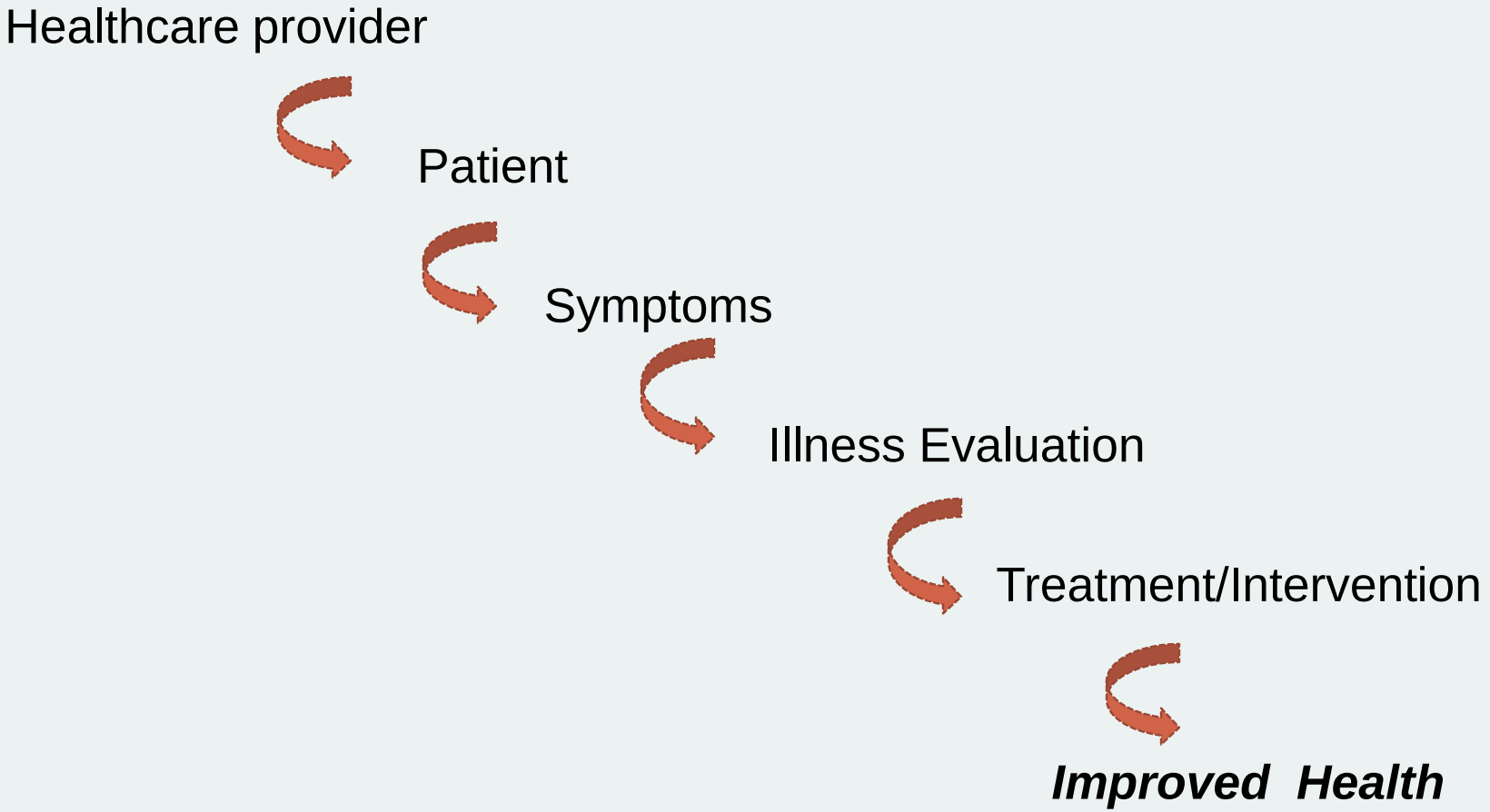
COMMUNITY HEALTH ASSESSMENT WEBINAR
JUNE 13, 2012

Topics

- Background of Community Health Assessment in El Paso County
- Brief review of epidemiologic techniques for data analysis
- Sources of data for population health indicators
- Displaying population health data



Medical Model of "Diagnostic" Healthcare



Public Health Model of Population Health

Public Health Evaluator

Population

Descriptive/Analytic Epidemiology

Health Indicators/Comparisons

Identify health issues/
Partnerships for interventions

Improved Health

What is a Community Health Assessment?

- An analytic process intended to describe the health of the community and identify issues that cause
  - Illness, or lack of wellness
  - Hospitalizations
  - Injury
  - Loss of quality of life
  - Death
  - Health inequities

Outcomes of CHA

- What does CHA do?
  - Provides objective measures of health behaviors, health outcomes, illness, and death
  - “Tells it like it is”
  - Find emerging issues, trends
  - Goes beyond just access to health care
- What doesn’t CHA do?
  - Make judgments
  - Define capacity to change health
  - Prioritize resources

Identifying Health Indicator Set

- El Paso County Public Health participated on CDPHE Health Indicators Taskforce in 2010
- Crosswalk between sample indicator set and
  - CDPHE MCH priorities
  - CO Health Foundation
  - RWJF County Rankings
  - CDC Winnable Battles
  - IOM Leading Health Indicators
- Still needed organizational framework to communicate data:
  - Used CO Winnable Battles as platform for organizing content into “health areas”
  - Used CDPHE Health Equity Model

Health Equity

An Explanatory Model for Conceptualizing the Social Determinants of Health

NATIONAL INFLUENCES
GOVERNMENT POLICIES
U.S. CULTURE & CULTURAL NORMS

LIFE COURSE | **SOCIAL DETERMINANTS OF HEALTH** + **HEALTH FACTORS** = **POPULATION OUTCOMES**

LIFE COURSE
PREGNANCY
EARLY CHILDHOOD
CHILDHOOD
ADOLESCENCE
ADULTHOOD
OLDER ADULTS

ECONOMIC OPPORTUNITY	PHYSICAL ENVIRONMENT	SOCIAL FACTORS
• Income • Employment • Education • Housing	Built Environment – Recreation – Food –Transportation Environmental quality – Housing – Water – Air Safety	• Participation • Social support • Leadership • Political influence • Organizational networks • Violence • Racism

HEALTH BEHAVIORS & CONDITIONS	MENTAL HEALTH	ACCESS , UTILIZATION & QUALITY CARE
• Nutrition • Physical activity • Tobacco use • Skin cancer • Injury • Oral health • Sexual health • Obesity • Cholesterol • High blood pressure	• Mental health status • Substance abuse • Functional status	• Health insurance coverage • Received needed care • Provider availability • Preventive care

POPULATION OUTCOMES
QUALITY OF LIFE
MORBIDITY
MORTALITY
LIFE EXPECTANCY

Source: Colorado Department of Public Health and Environment

El Paso County Health Indicators

- Socioeconomic description of El Paso County
- Morbidity and mortality
- Access to care
- Environmental health
- Food safety
- Healthy eating and active living
- Motor vehicle injury
- Oral health
- Tobacco use
- Unsafe sexual practices and teen pregnancy
- Vaccine-preventable infectious diseases

Collecting Qualitative Data

- Conducted key informant interviews to identify perceived health issues in El Paso County
  - 28 external interviews with key community leaders
  - 6 internal interviews with EPCPH program managers
- Used a standardized questionnaire (45 minutes)
  - Participants were asked to identify important health issues in EPC as well as the population and economic burden of these issues
  - Also asked to identify “priority” health issues to be addressed over the next 5 years
- Obesity chosen as a top priority, as well as mental health and access to care

Quick Epi Review on Rates

Review of Rates

- Incidence rate - new cases of a specific disease occurring during a specified time
- Prevalence rate - existing (old or new) cases of a specific disease
  - Often presented as a proportion (e.g., percent of a population with a particular condition)

Rates vs Proportions

- Rates provide frequency of events adjusted for size of populations
  - Tells you how fast the disease is occurring; quantifies risk
  - E.g., Rate of prostate cancer is 400 per 100,000 men per year

- Proportions describe the distribution of disease within a population, based on certain characteristics
  - Tells you what fraction of a population is affected; how the burden of disease is distributed
  - E.g., 75% of prostate cancer cases occur in men aged 60 years and older

Comparing Rates Across Populations

- Stratification – the process of separating data into subgroups according to specific criteria
  - Descriptive epidemiologic analysis often uses stratification to identify differences in risk or outcomes based in certain demographic characteristics that are relevant to the disease or other condition
    - Sometimes referred to as a “cross-tab”
    - Commonly used strata – age, sex, race/ethnicity
- Adjusted rates
    - For mortality, age-adjustment commonly used
    - Can do same calculation for other demographic characteristics

Rates – Different Approaches

Crude Mortality Rate $\frac{\text{\# total deaths from all causes in 1yr}}{\text{Midyear population estimate}}$

Disease Specific Mortality Rate* $\frac{\text{\# total deaths from specific causes in 1yr}}{\text{Midyear population estimate}}$

Age Specific Mortality Rate* $\frac{\text{\# total deaths in a specific age group in 1yr}}{\text{Midyear population estimate of age group}}$

*Same approach can be used for incidence or prevalence

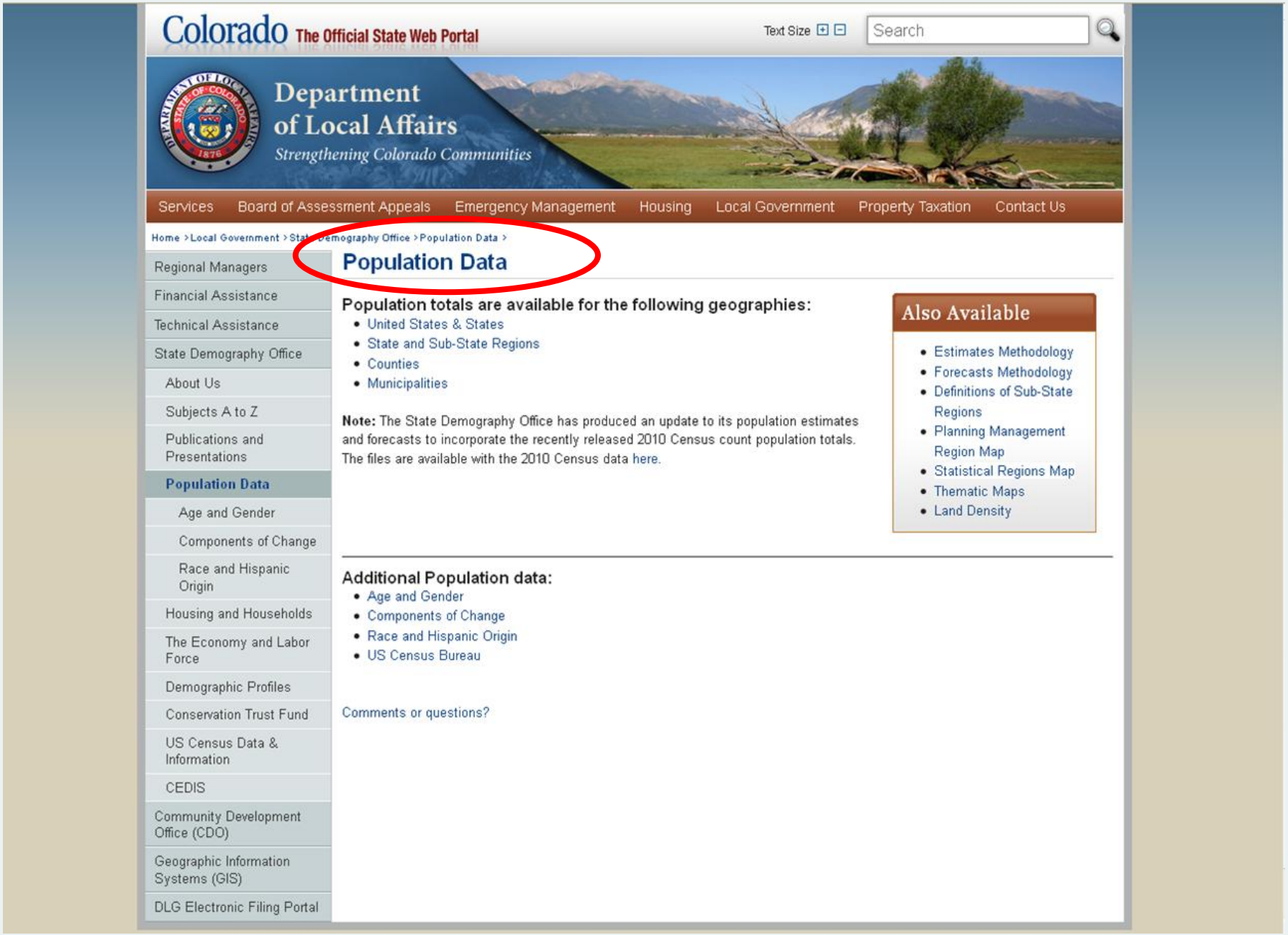
Finding Population Health Data

Collecting Quantitative Data

- For EPCPH, majority of data was collected from standardized, pre-existing sources
  - Health survey data
  - Disease and injury surveillance data
  - Socioeconomic data
  - Vital statistics data
  - Population data
- Other data was acquired through special data requests to various programs at CDPHE (primarily Health Statistics)

Quantitative Data Sources

Population counts and other administrative data	• **Colorado State Demography Office** • **Colorado Department of Labor and Employment** • **Colorado Department of Education**
Birth and death data	• **Colorado Department of Public Health and Environment**
Socioeconomic data	• **U.S. Census Bureau** • **American Community Survey (ACS)** • **Colorado Department of Labor and Employment**
Disease or injury surveillance data	• **Colorado Department of Public Health and Environment** • **National Highway Traffic Safety Administration** • **Colorado Hospital Association**
Health survey data	• **Behavioral Risk Factor Surveillance System (BRFSS)** • **Colorado Child Health Survey** • **Colorado Health Access Survey (formerly, Colorado Household Survey)** • **National Immunization Survey (NIS)** • **National Survey on Drug Use and Health** • **Pregnancy Risk Factor Monitoring System (PRAMS)** • **Youth Risk Behavior Surveillance System (YRBS)**



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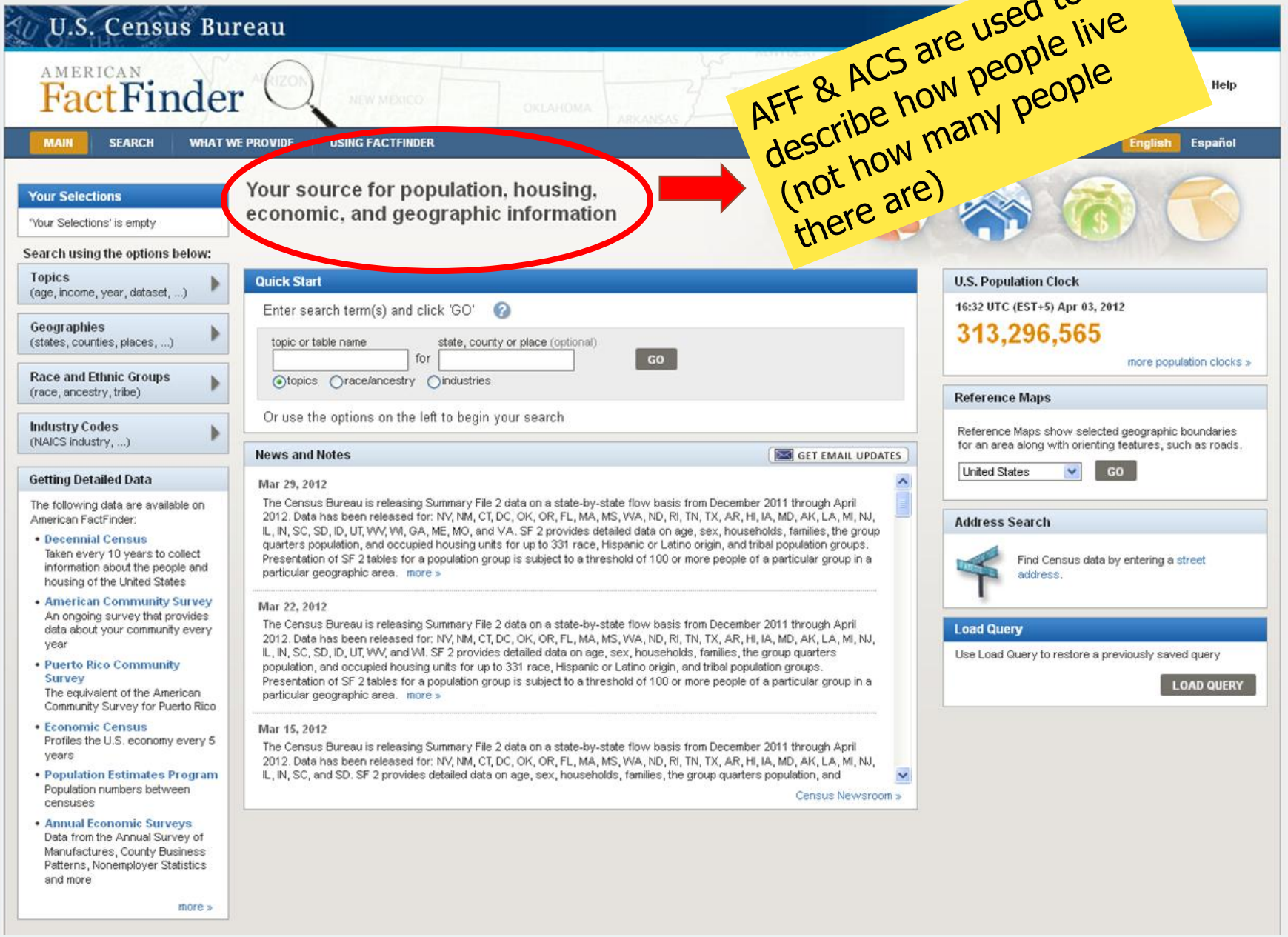
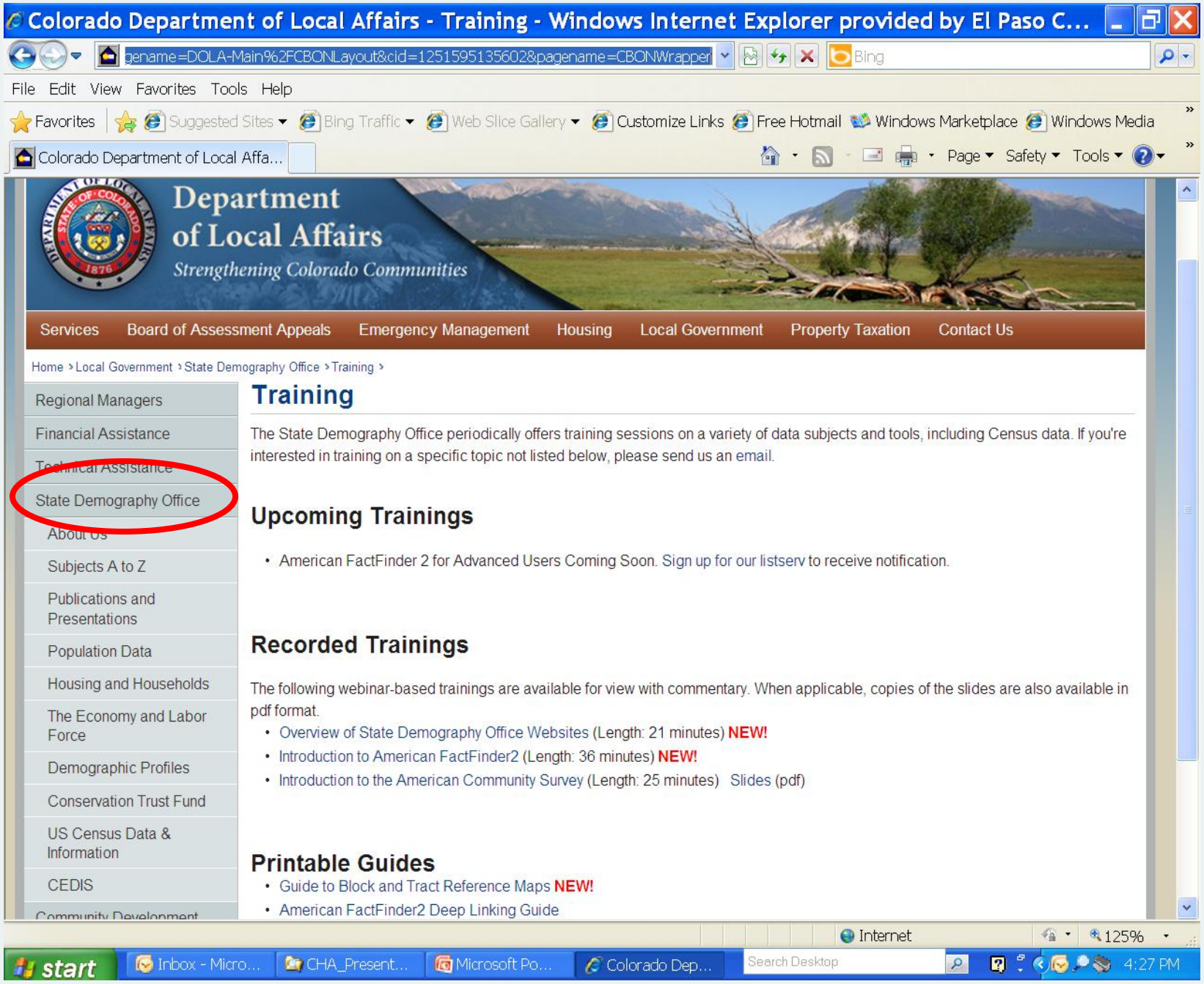


http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml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Subjects A to Z
Publications and Presentations
Population Data
Housing and Households
The Economy and Labor Force
Demographic Profiles
Conservation Trust Fund
US Census Data & Information
CEDIS
Community Development
Training
The State Demography Office periodically offers training sessions on a variety of data subjects and tools, including Census data. If you're interested in training on a specific topic not listed below, please send us an email.
Upcoming Trainings
• American FactFinder 2 for Advanced Users Coming Soon. Sign up for our listserv to receive notification.
Recorded Trainings
The following webinar-based trainings are available for view with commentary. When applicable, copies of the slides are also available in pdf format.
• Overview of State Demography Office Websites (Length: 21 minutes) NEW!
• Introduction to American FactFinder2 (Length: 36 minutes) NEW!
• Introduction to the American Community Survey (Length: 25 minutes) Slides (pdf)
Printable Guides
• Guide to Block and Tract Reference Maps NEW!
• American FactFinder2 Deep Linking Guide
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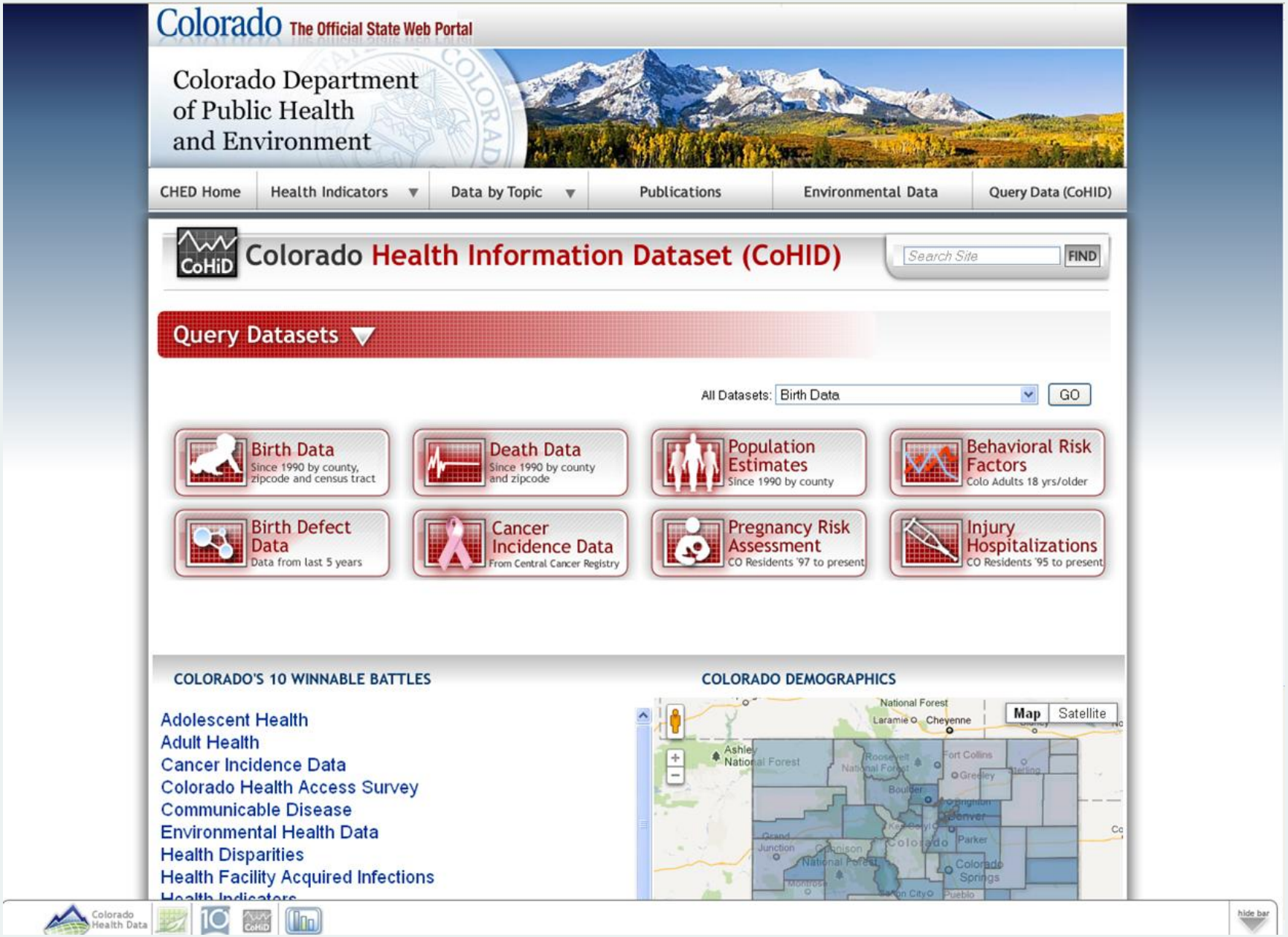

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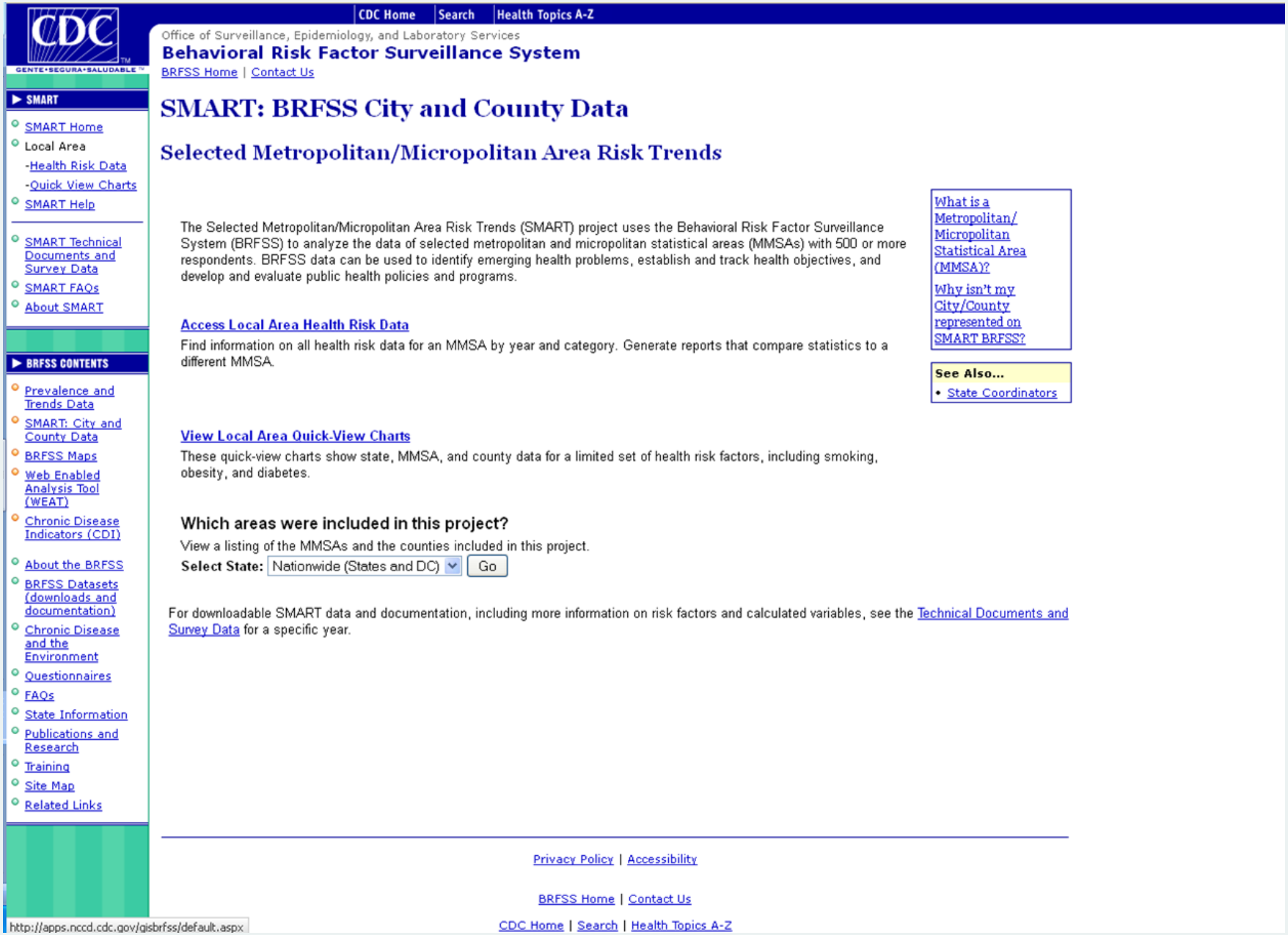
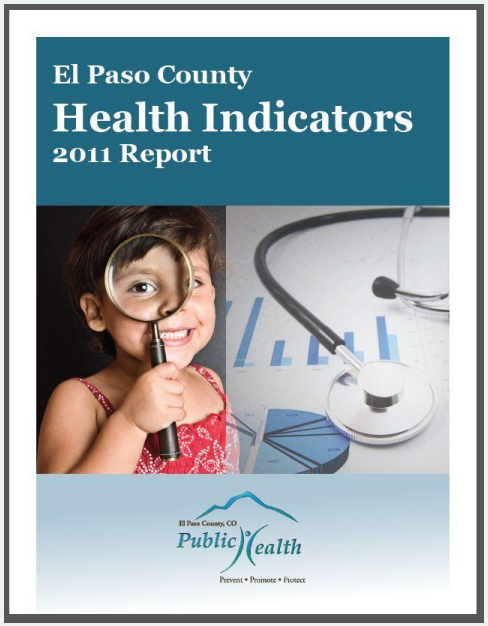


http://apps.nccd.cdc.gov/BRFSS-SMART/

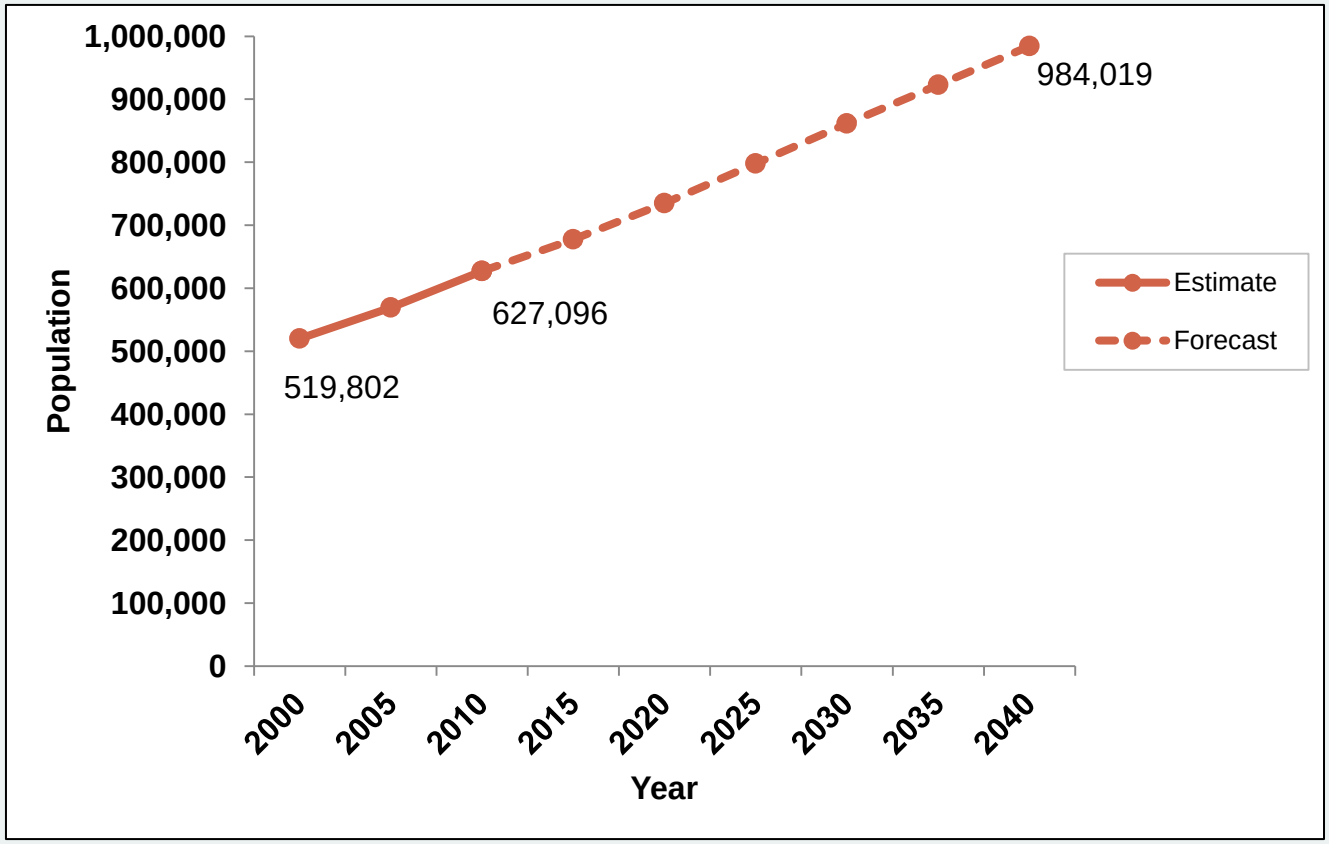
Displaying Population Health Data

DATA FROM

EL PASO COUNTY 2012 HEALTH INDICATORS REPORT



Population estimates and projected forecast, El Paso County 2000 to 2040



Source: Colorado Department of Local Affairs, State Demography Office. Population Totals for Colorado Counties.

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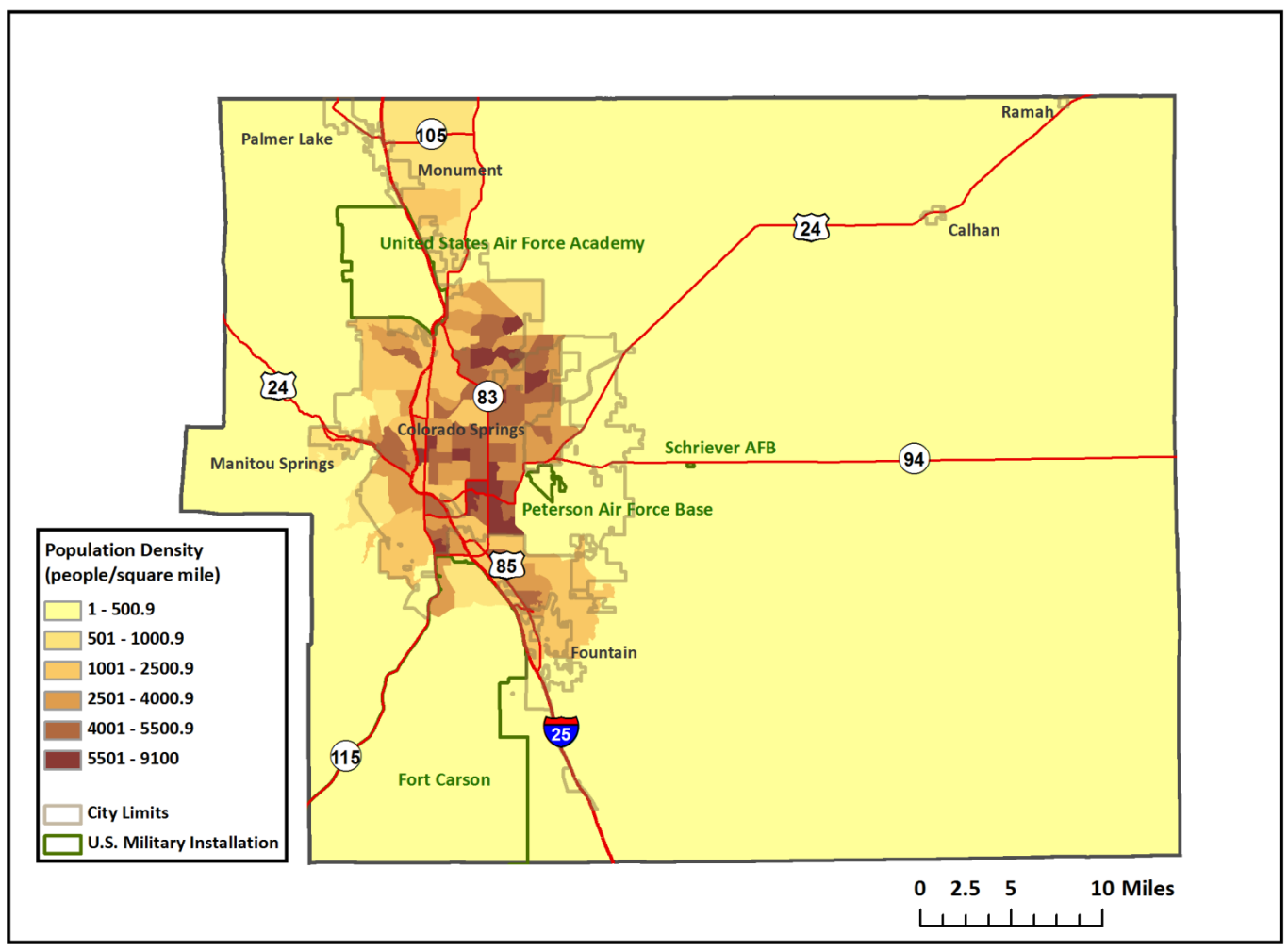
Population density (people/square mile), by census tract, El Paso County 2010



Source: U.S. Census Bureau. 2010 Census: Table GCT-PH1.

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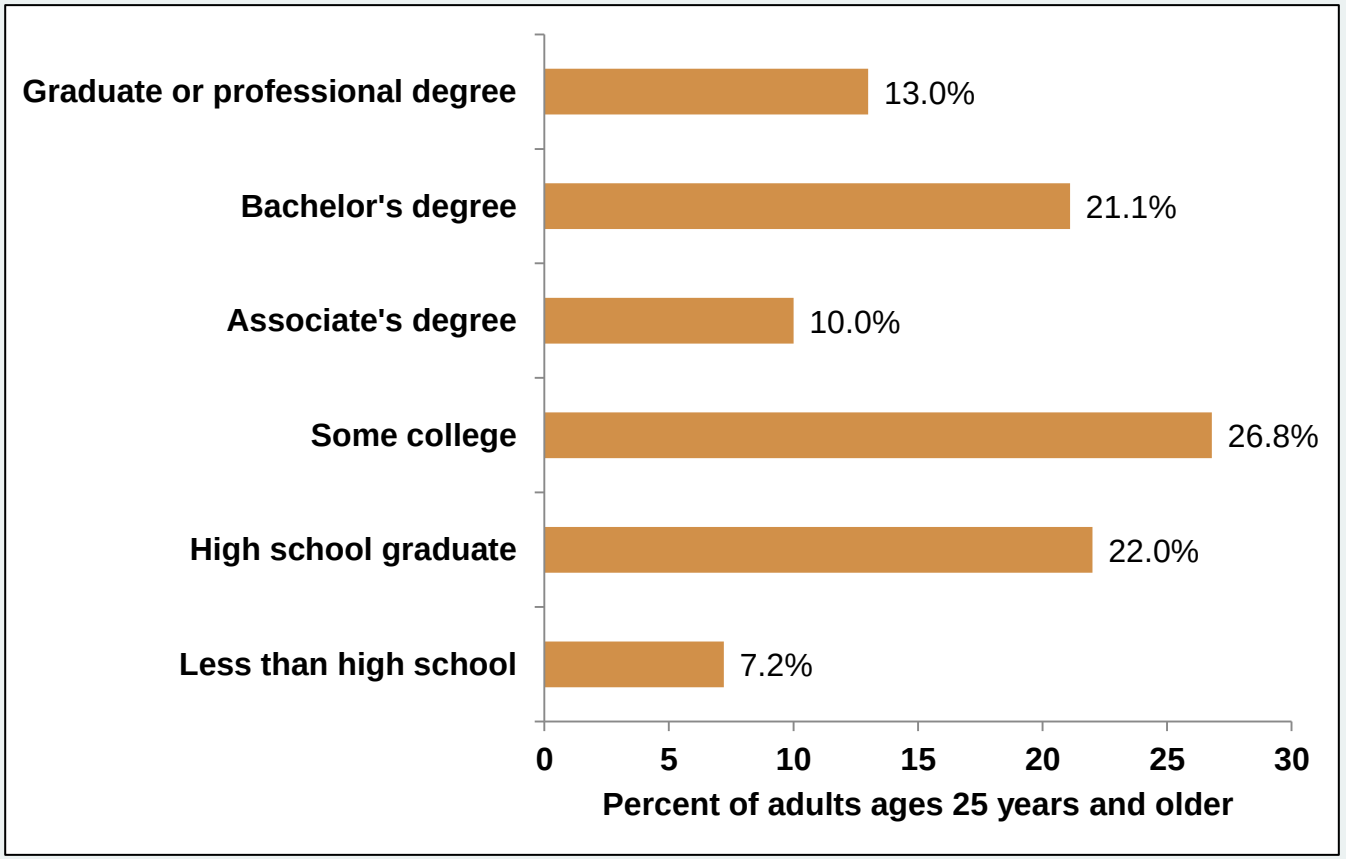
Educational attainment among adults ages 25 years and older, El Paso County 2010



Source: U.S. Census Bureau. 2010 American Community Survey: Table DP02.

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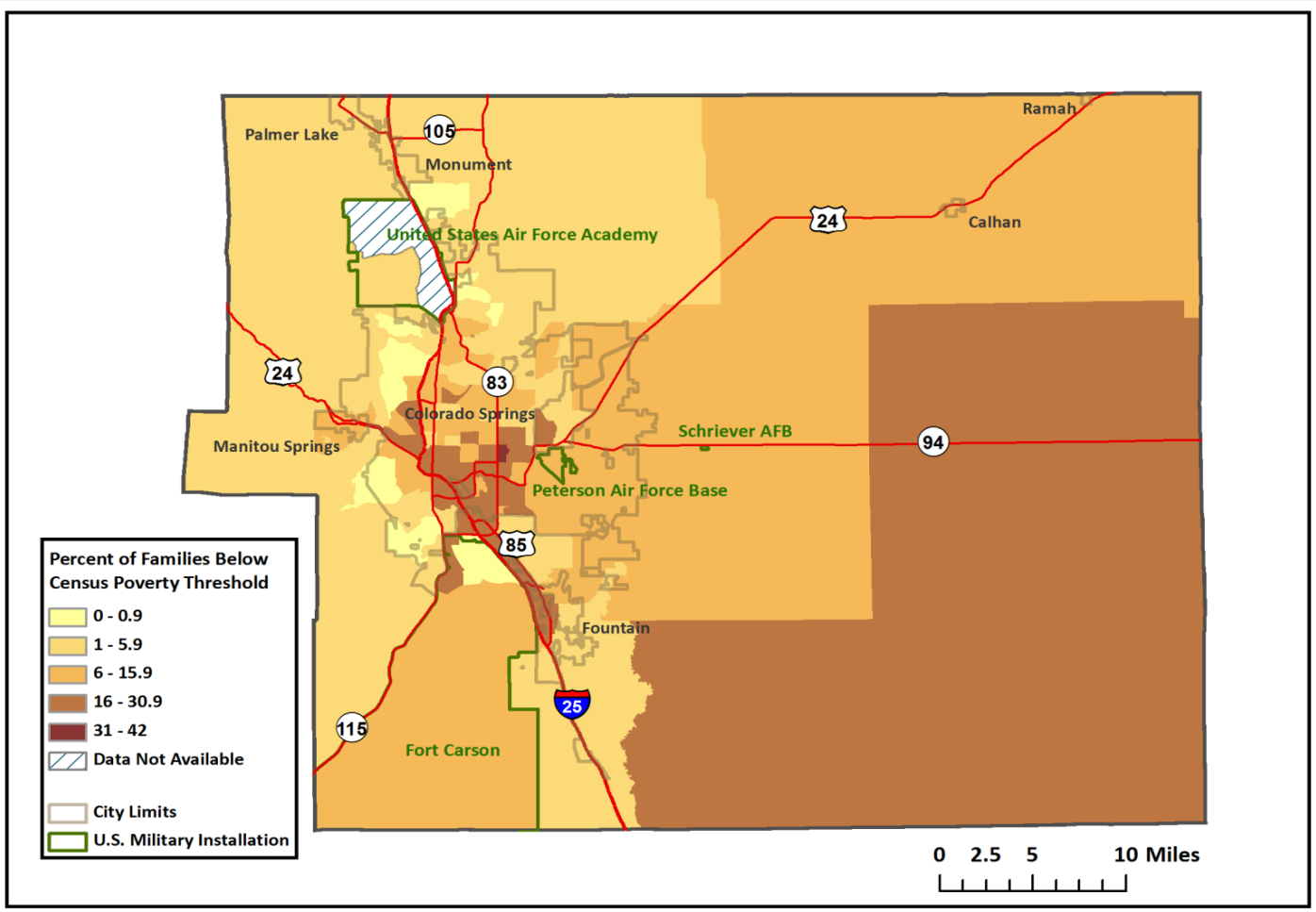
Percent of families below poverty threshold, by census tract, El Paso County 2006 to 2010



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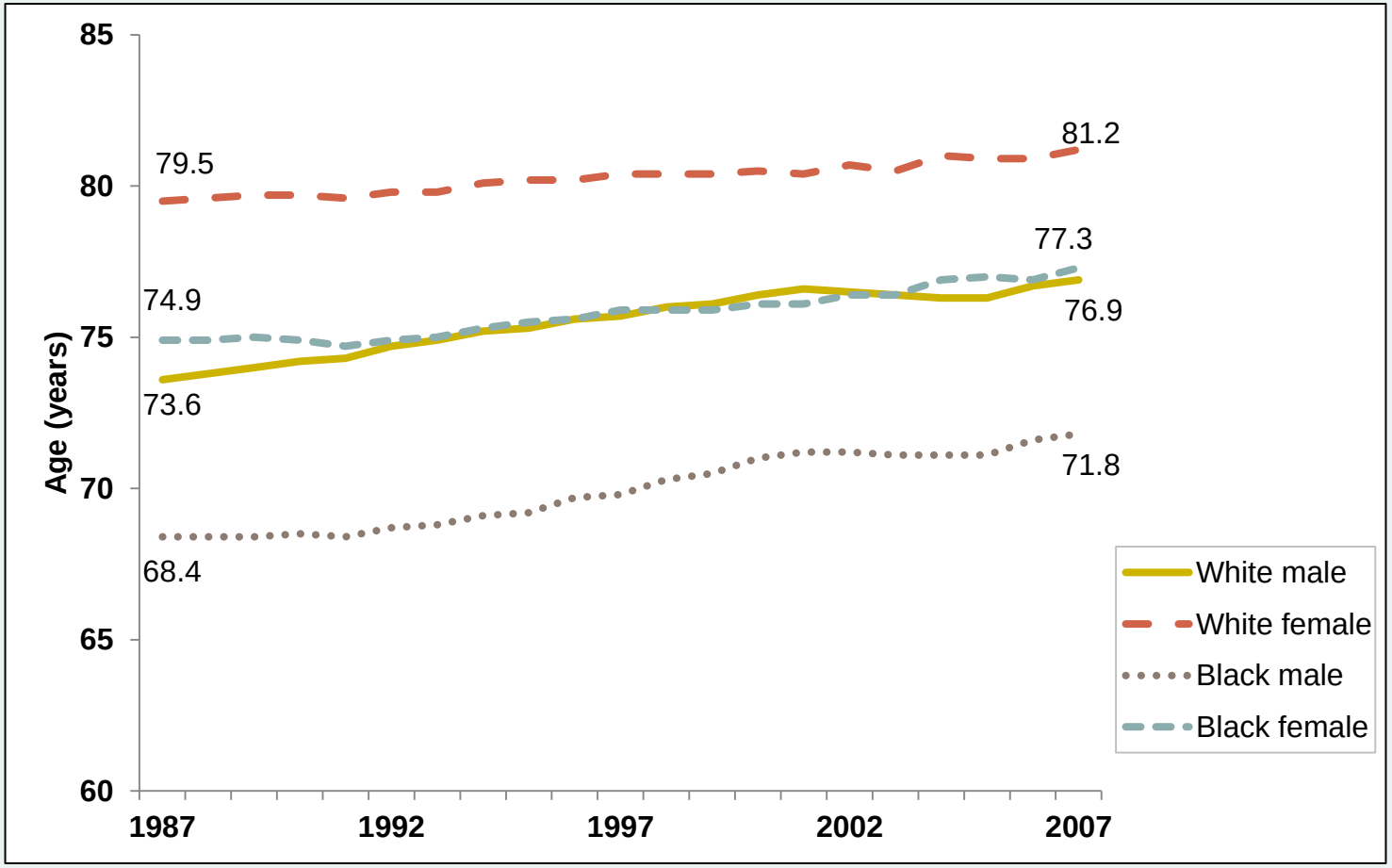
Life expectancy, by sex and race, El Paso County 1987 to 2007



Source: Kulkami S, Levin-Rector A, Ezzati M, and Murray C. Falling behind: life expectancy in US counties from 2000-2007 in an international context. Population Health Metrics 2011; 9:16.

Top 10 causes of death, El Paso County 2007 to 2009

Rank	Cause of death	Crude # Deaths per 100,000 population per year
1	Cancer	128.5
2	Heart disease	113.6
3	Unintentional injuries	38.7
4	Chronic lower respiratory diseases	38.0
5	Cerebrovascular diseases	33.1
6	Suicide	18.6
7	Alzheimer's disease	15.6
8	Diabetes mellitus	12.8
9	Chronic liver disease and cirrhosis	9.7
10	Influenza and pneumonia	9.4

Source: Colorado Department of Health and Environment. Colorado Health Information Dataset: Death Data.

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Age-specific leading causes of death, El Paso County 2007-2009

Ages <1

1. Congenital Malformations & Chromosomal Abnormalities
2. Length of Gestation & Fetal Malnutrition
3. SIDS
4. Complications of Pregnancy, Labor, & Delivery
5. Blood-related Disorders

Ages 1-14

1. Unintentional Injuries
2. Homicide/Legal Intervention
3. Malignant Neoplasms
4. Heart Disease
5. Congenital Malformations & Chromosomal Abnormalities

Ages 15-24

1. Unintentional Injuries
2. Suicide
3. Homicide/Legal Intervention
4. Malignant Neoplasms
5. Heart Disease

Ages 25-44

1. Unintentional Injuries
2. Suicide
3. Malignant Neoplasms
4. Heart Disease
5. Homicide/Legal Intervention

Ages 45-64

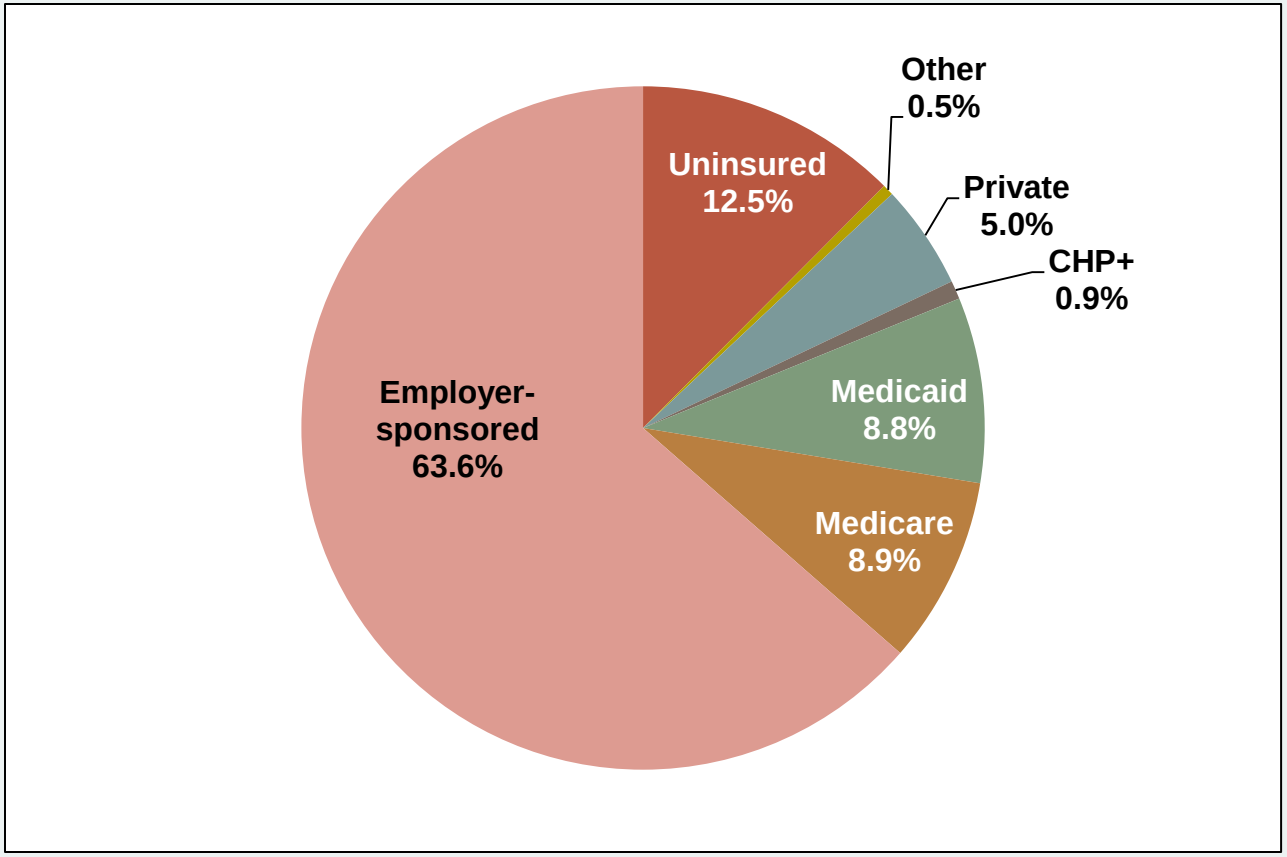
1. Malignant Neoplasms
2. Heart Disease
3. Unintentional Injuries
4. Suicide
5. Chronic Liver Disease & Cirrhosis

Ages 65+

1. Malignant Neoplasms
2. Heart Disease
3. Chronic Lower Respiratory Diseases
4. Cerebrovascular Diseases
5. Alzheimer's Disease

Source: Colorado Department of Public Health and Environment, Health Statistics Section. (Special death data request)

Health insurance coverage, by type, El Paso County 2011



Source: Colorado Health Access Survey. 2011. Denver, CO: The Colorado Trust. (Special data request)

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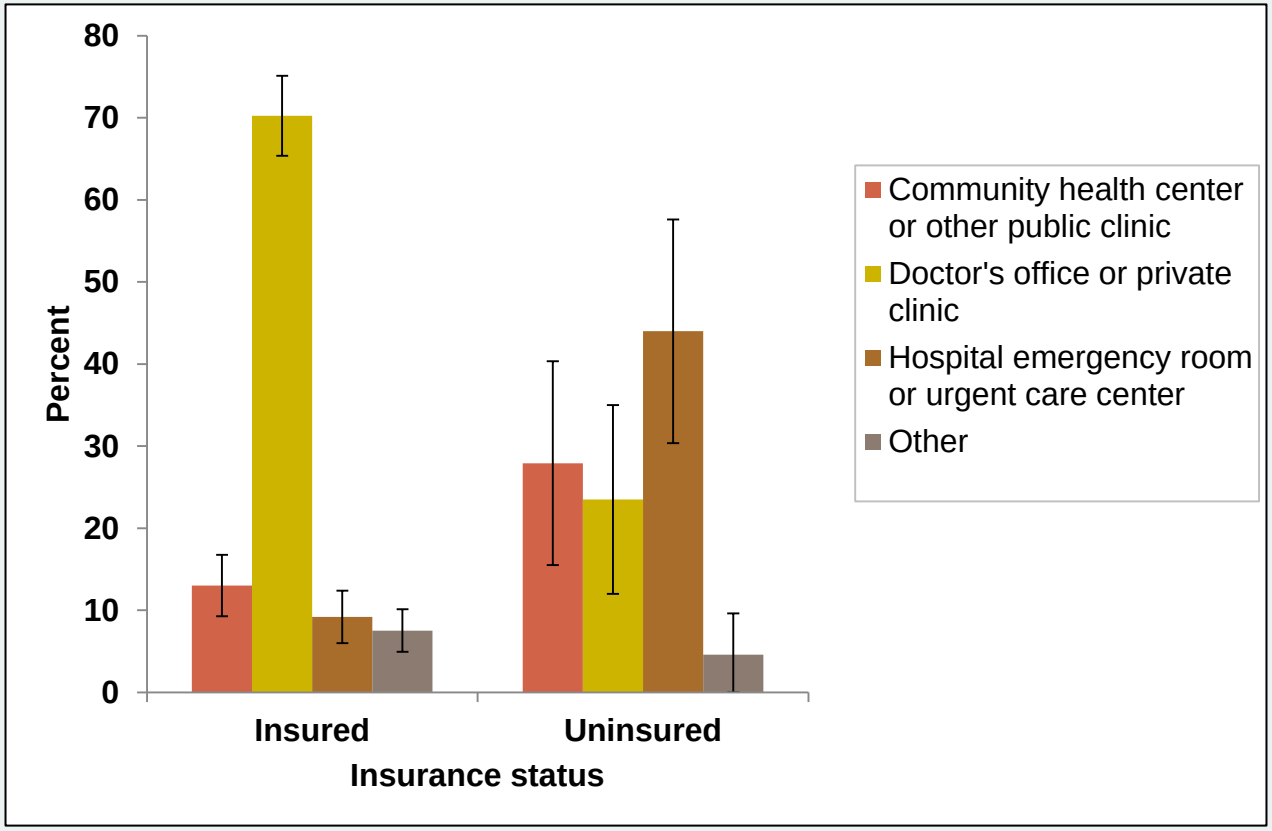
Usual source of health care, by insurance status, El Paso County 2011



Note: Error bars represent the 95% margin of error for each value.

Source: Colorado Health Access Survey. 2011. Denver, CO: The Colorado Trust. (Special data request)

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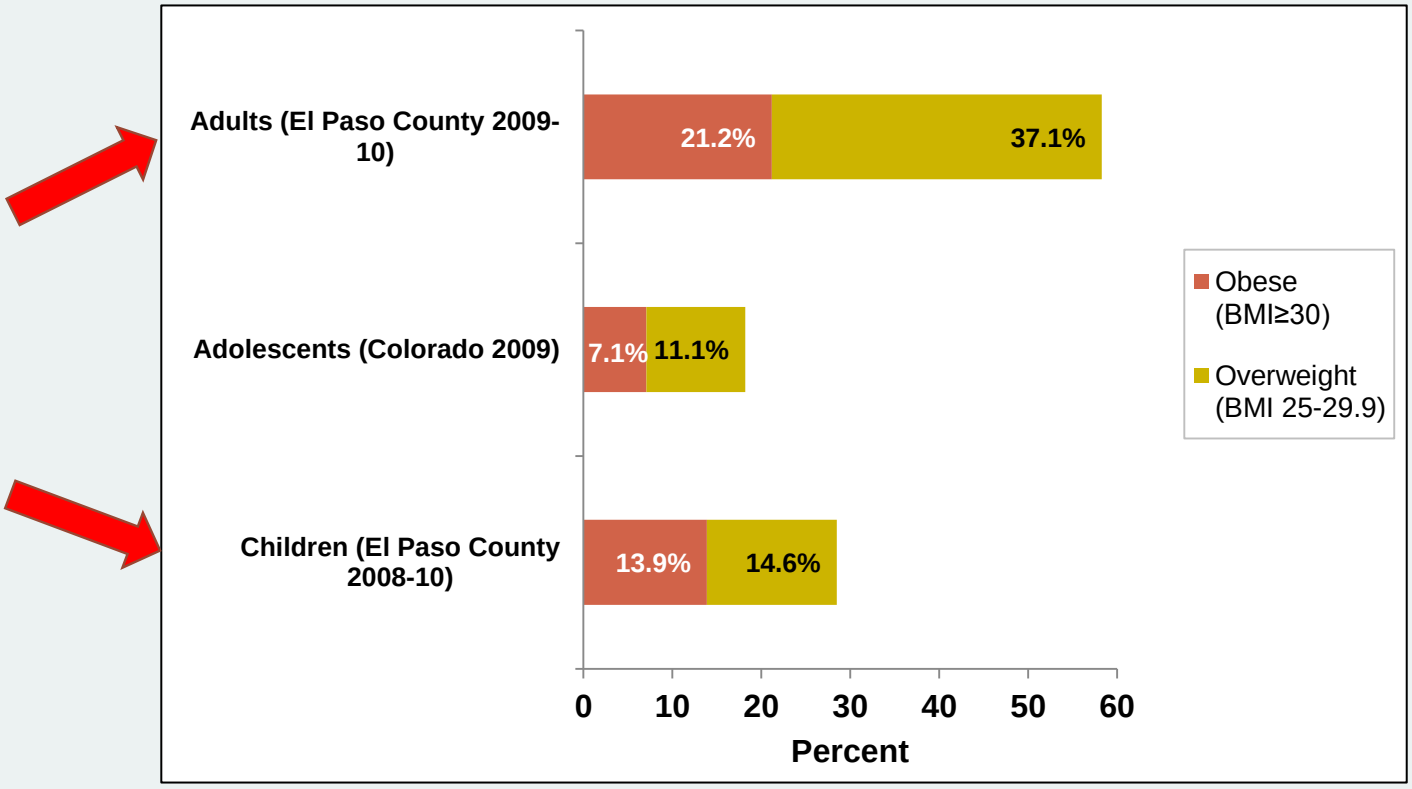
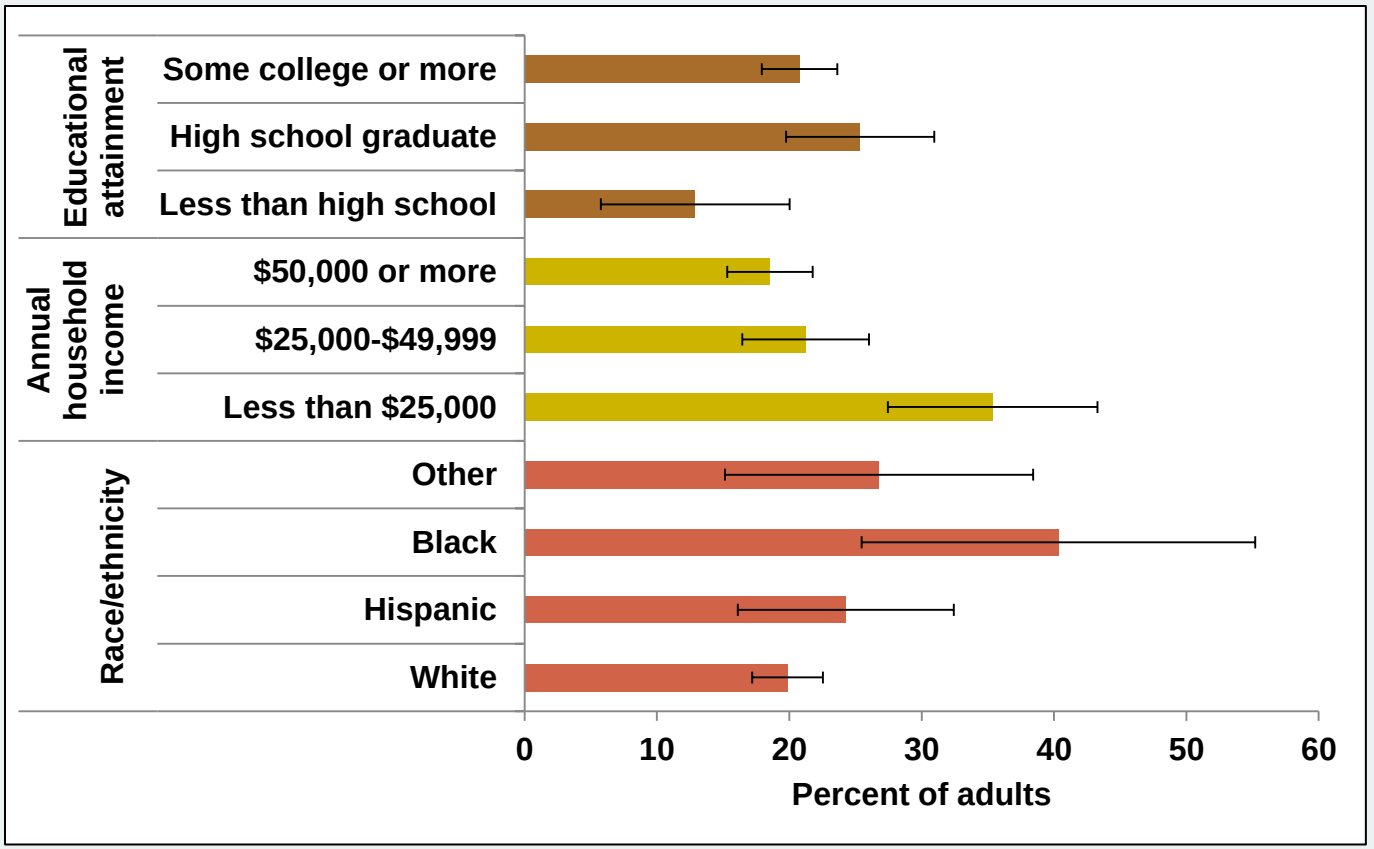
Percent of population with unhealthy weight, El Paso County and Colorado 2008 to 2010



Sources: Colorado Department of Public Health and Environment. Colorado Child Health Survey; YRBS; and BRFSS data.

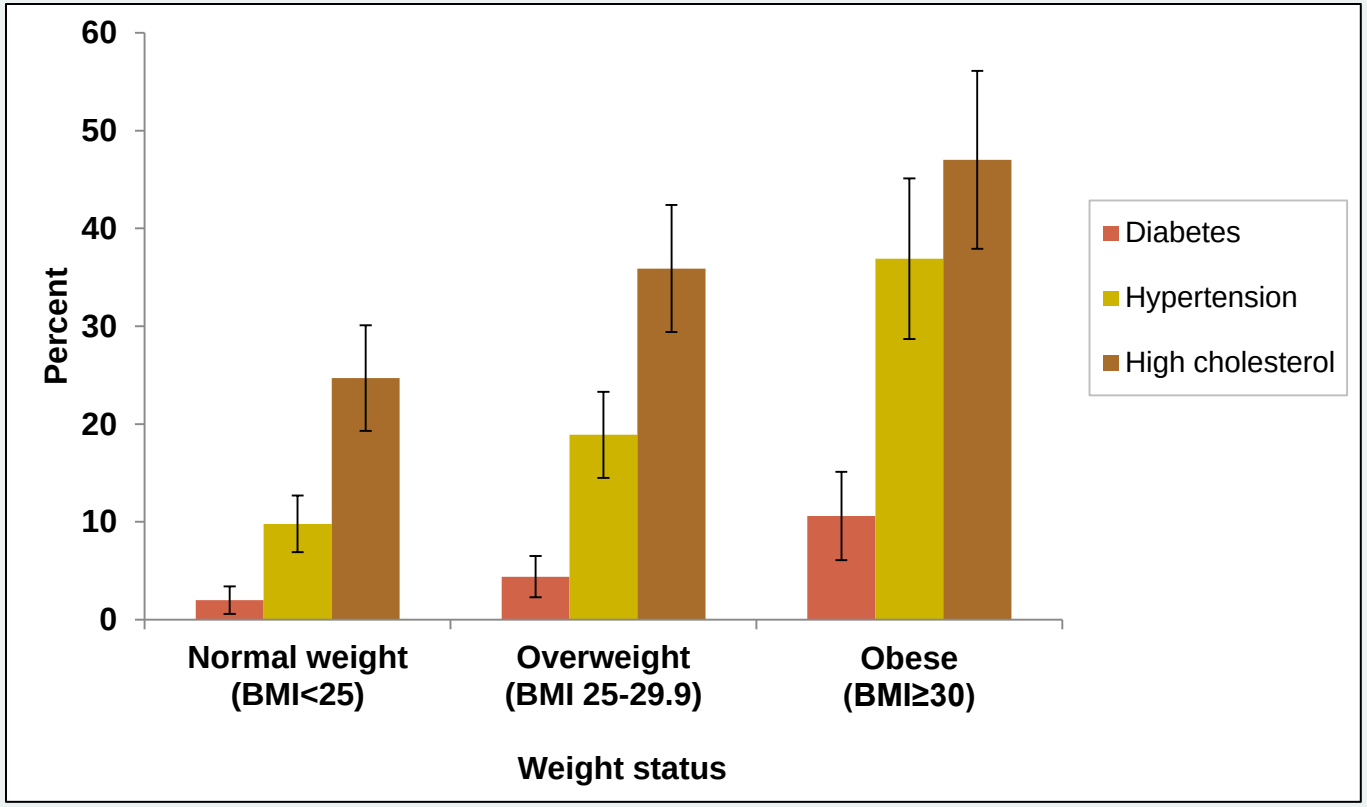
Percent of adults 18 years and older who are obese (BMI ≥30), by selected characteristics, El Paso County 2009 to 2010



Note: Error bars represent the 95% margin of error for each value.

Source: Colorado Department of Public Health and Environment. Colorado Health Information Dataset: BRFSS Data.

Percent of adults 18 years and older with co-existing conditions based on weight status, El Paso County 2009



Note: Error bars represent the 95% margin of error for each value.

Source: Colorado Department of Public Health and Environment, Health Statistics Section. (Special BRFSS data request)

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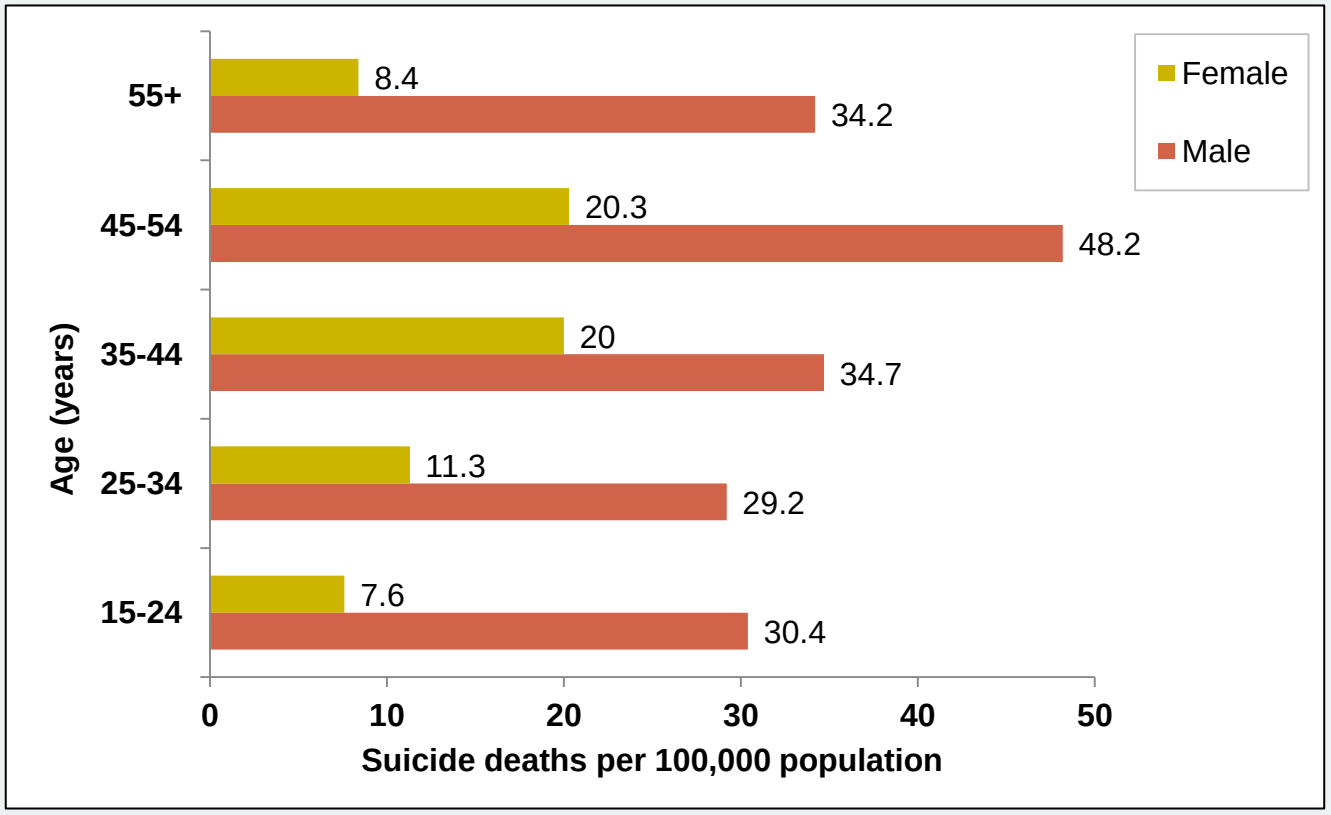
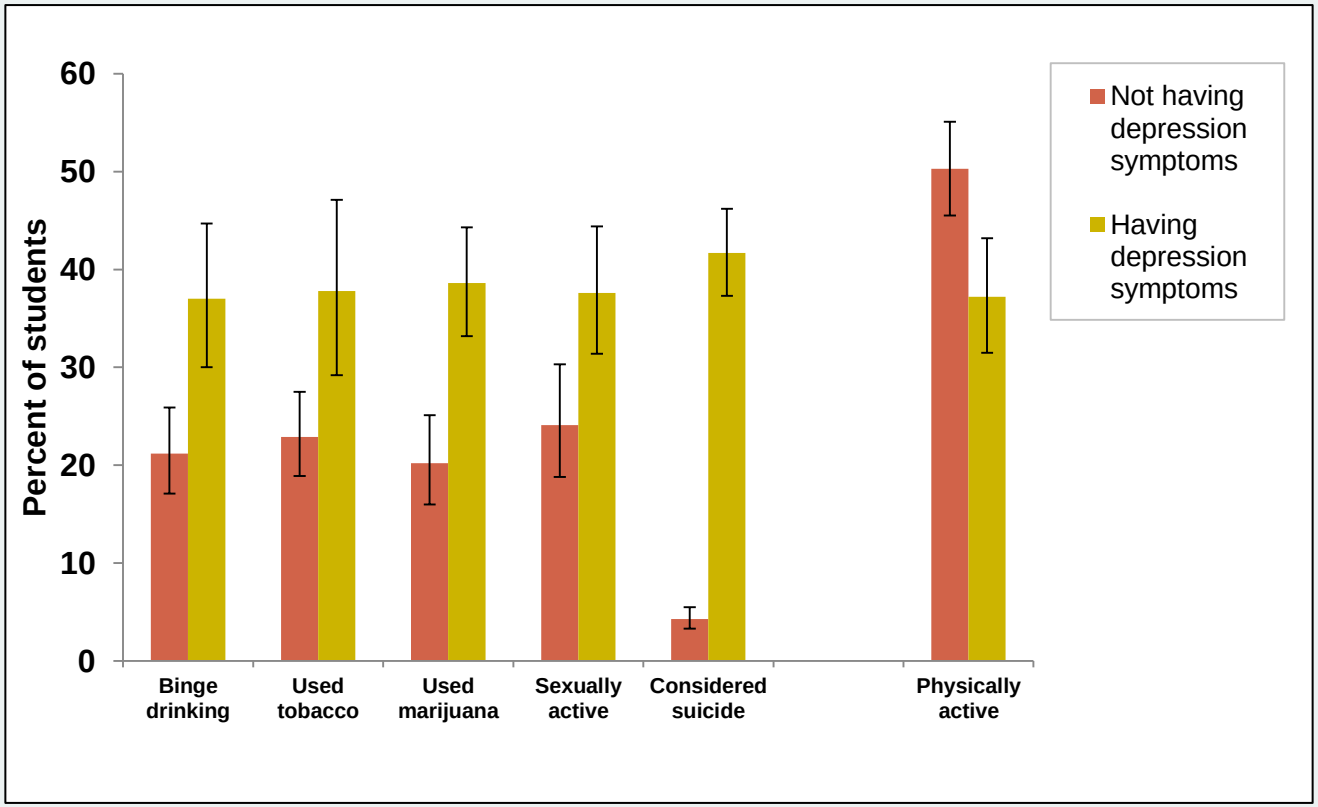
Suicide death rate, by age and sex, El Paso County 2008 to 2010



Source: Colorado Department of Health and Environment. Colorado Health Information Dataset: Death Data.

Correlation between symptoms of depression and other behaviors among Colorado students in ninth through twelfth grades, 2009



Note: Error bars represent the 95% margin of error for each value.

Source: Colorado Department of Education. Healthy Kids Colorado Survey, 2009 State Report [Dec 2010].

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Characteristics of motor vehicle traffic fatalities in El Paso County, 2010

Vehicle and driver-related factors	Percent of total fatalities
Occupant in a passenger vehicle (all seat positions)	73.1%
Unrestrained driver or passenger	46.7% of passenger vehicle occupant fatalities
Motorcycle	19.5%
Driver or rider not wearing helmet	75.0% of motorcycle fatalities
Alcohol-impaired driver (BAC = 0.08+)	39.0%
Speeding-related crash	43.9%
Teen fatalities (ages 15-19)	12.2%

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration. Fatality Analysis Reporting System Encyclopedia.

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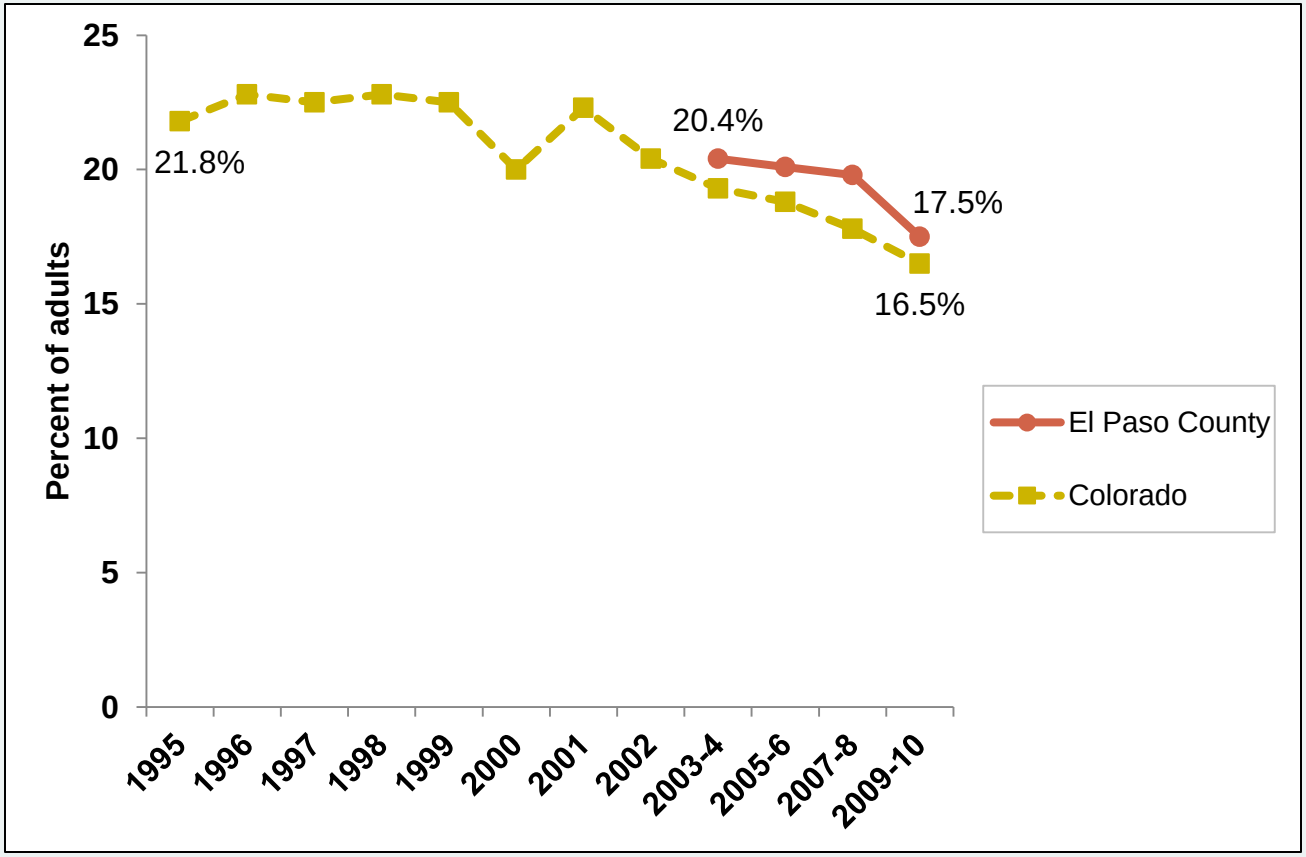
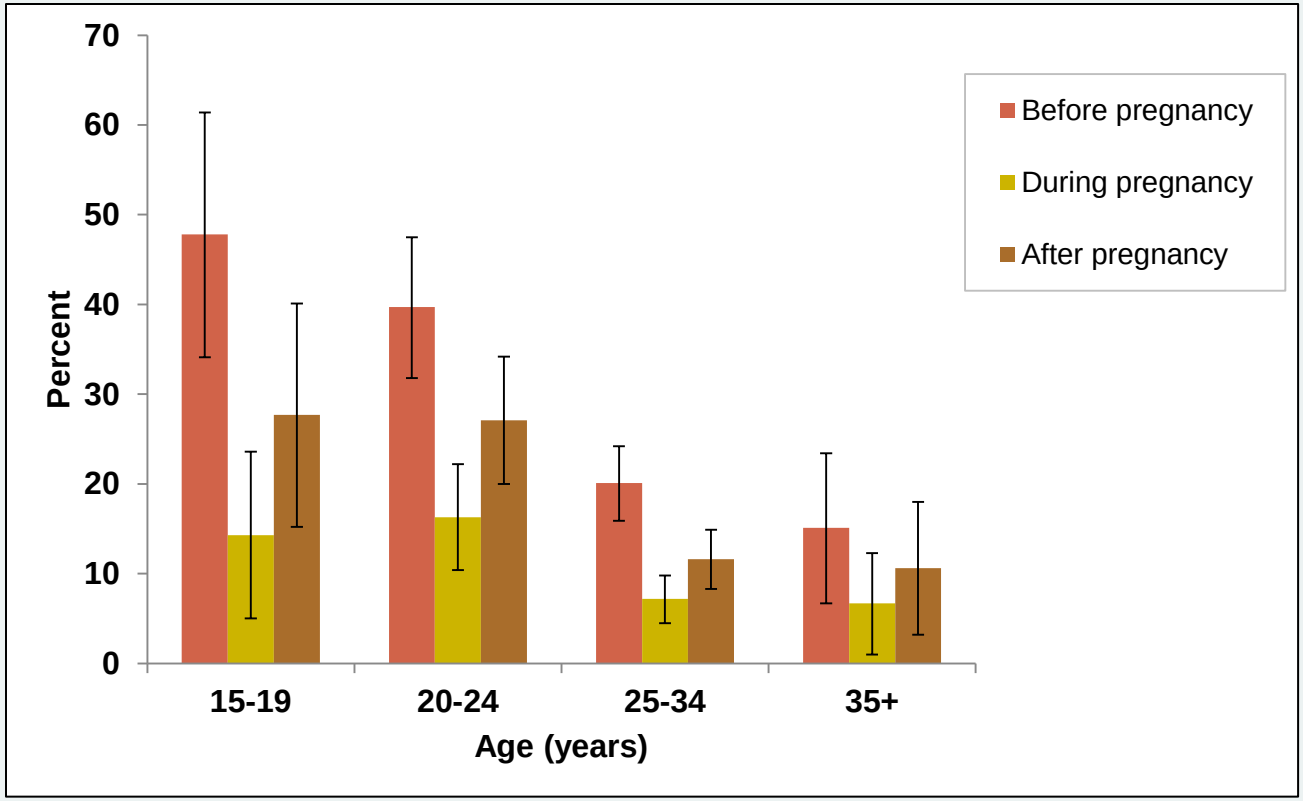
Percent of adults 18 years and older who report being a current cigarette smoker, 1995 to 2010



Source: Colorado Department of Public Health and Environment. Colorado Health Information Dataset: BRFSS Data.

Percent of new mothers who smoked before, during, or after pregnancy, by age, El Paso County 2008 to 2010



Note: Error bars represent the 95% margin of error for each value.

Source: Colorado Department of Public Health and Environment. Colorado Health Information Dataset: PRAMS Data.

Data Considerations

- ***What story do you want to tell about the data?***
- What are relevant comparison groups?
- Are their health disparities to describe?
- Use stratification to demonstrate differences in risk or outcomes.
- Combine years of data to increase survey sample size (if combining will not greatly impact interpretation).
- Combine years of data to stabilize estimates (if combining will not greatly impact interpretation).
- Go to original data sources when possible.
- ***Ask a lot of questions of your data!***